

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

CLEANUP AND ABATEMENT ORDER NO. 88-1

ALZA CORPORATION and
STANFORD UNIVERSITY
1454 Page Mill Road
Palo Alto, Santa Clara County

FINDINGS

1. Alza Corporation has leased property located in the Stanford Research Park at 1454 Page Mill Road from Stanford University since 1972. Alza Corporation subleased this property to Dynapol until 1981 or 1982. Alza Corporation also subleased the property to DYNAX concurrently and subsequently to Dynapol. Alza Corporation has occupied the property over approximately the past two years.
2. Alza Corporation determined in February 1987 that groundwater beneath the 1454 Page Mill Road site contained high levels of chloroform based on the analytical results of sampling a monitoring well that they had voluntarily installed. Four months after obtaining this information, Alza Corporation informed staff of the Regional Board on June 29, 1987 that a release has occurred.
3. Alza has installed five monitoring wells and two vadose zone, soil gas, extraction wells at the site. Four of the monitoring wells are located in the first water-bearing zone approximately 30 to 50 feet below the ground surface and one is located 75 to 85 feet below the ground surface in the second water-bearing zone.
4. Concentrations of chloroform have been detected at up to 1900 ug/l and concentrations of carbon tetrachloride have been detected at up to 77 ug/l in one of the shallow monitoring wells. The groundwater gradient in the area is relatively flat and the direction of groundwater flow in the first water-bearing zone reportedly varies from north to east.
5. The source of volatile organic chemicals appears to have resulted from spillage from the former tenants' chemical storage area near Building R (Figure 1). Spilled chemicals are believed by Alza Corporation to have run off of the paved area of the former chemical storage area onto unpaved soils. A shallow soil sample collected in this area contained 520 ug/kg chloroform, 250 ug/kg carbon tetrachloride, and 130 ug/kg 1,1-dichloroethene. Alza reports that they have never stored these chemicals in this area.
6. The history of chemical storage, usage and handling at the site is poorly understood. On December 30, 1987, Alza Corporation agreed to supply the Regional Board staff with information needed to contact their previous tenants so that chemical use information could be supplied. Alza Corporation failed to submit information by January 4, 1988 on their chemical use history at the site as required by a Regional Board staff letter dated November 3, 1987 which cited Section

13267 of the Water Code as the basis of this request.

7. The site is located on or near a contact between the Santa Clara Formation and younger alluvium. The geology in this area is unusually complicated by the presence of this contact which creates uncertainty regarding the migratory pathways for groundwater and dissolved pollutants. The Santa Clara Formation is typically confined and more consolidated and possesses dipping beds compared with the younger alluvium which is typically more permeable and unconfined.
8. Given the uncertainties of the groundwater flow direction and the possibility of missing a migratory pathway for pollutants moving in groundwater in this area, the Regional Board staff requested that additional wells be installed at the site. The proposal submitted by Alza on December 4, 1987 was judged by Regional Board staff to be unacceptable for defining the direction and extent of pollutants in groundwater which originate at the site. On December 11, 1987, the Regional Board staff notified Alza Corporation and Stanford University, as property owner, that the proposal was unacceptable, and that either Alza Corporation must submit an acceptable proposal by December 24, 1987 or we would request that Stanford University submit an acceptable proposal. Regional Board staff met with Alza Corporation on December 30, 1987 to discuss their proposal which was basically unchanged from the one submitted on December 4, 1987. Based on a thorough discussion of the merits of the proposal and review by Santa Clara Valley Water District staff, it was again concluded that the proposal was unacceptable.
9. On December 31, 1987 Stanford University was informed of the results of the meeting and that they would be requested to submit a technical report containing an acceptable proposal to define the extent of pollution in groundwater by February 2, 1988. This request was formalized in a letter dated January 5, 1988.
10. Alza Corporation (hereinafter referred to as a discharger) is a discharger because one or more of their tenants released pollutants to the soil and groundwater and because pollutants continue to migrate from the releases in both surface and groundwaters. Stanford University (hereinafter referred to as a discharger) is a discharger because they own the property where the releases of pollutants has occurred.
11. The Regional Board adopted the San Francisco Bay Basin Plan (Basin Plan) on December 17, 1986. The Basin Plan contains water quality objectives and beneficial uses for South San Francisco Bay and contiguous surface and groundwaters.
12. The existing and potential beneficial uses of the groundwater underlying and adjacent to the facility include:
 - a. Industrial process water supply
 - b. Industrial service water supply
 - c. Municipal and Domestic water supply
 - d. Agricultural water supply

13. The dischargers have caused or permitted, and threaten to cause or permit waste to be discharged or deposited where it is or probably will be discharged to waters of the State and creates or threatens to create a condition of pollution or nuisance.
14. This action is an order to enforce the laws and regulations administered by the Board. This action is categorically exempt from the provisions of the CEQA pursuant to Section 15321 of the Resources Agency Guidelines.
15. Interim containment and cleanup measures need to be implemented to alleviate the threat to the environment posed by the continued migration of the groundwater plume of volatile organic chemicals and to provide a substantive technical basis for designing and evaluating the effectiveness of final cleanup alternatives.
16. Alza Corporation is unlikely to proceed in a timely manner with site characterization and effective remediation based on this characterization without a formal enforcement order. This is based on the current delays in submitting an acceptable proposal to define the extent of groundwater pollution.

IT IS HEREBY ORDERED, pursuant to Section 13304 of the California Water Code that the dischargers shall cleanup and abate the effects described in the above findings as follows:

A. PROHIBITIONS

1. The discharge of wastes or hazardous materials in a manner which will degrade water quality or adversely affect the beneficial uses of the waters of the State is prohibited.
2. Further significant migration of pollutants through subsurface transport to waters of the State is prohibited.
3. Activities associated with the subsurface investigation and cleanup which will cause significant adverse migration of pollutants are prohibited.

B. SPECIFICATIONS

1. The storage, handling treatment or disposal of soil or groundwater containing pollutants shall not create a nuisance as defined in Section 13050(m) of the California Water Code.
2. The dischargers shall conduct monitoring activities as needed to define the current local hydrogeologic conditions, and the lateral and vertical extent of soil and groundwater pollution.

C. PROVISIONS

1. The dischargers shall submit to the Board acceptable monitoring program reports containing results of work performed according to a program prescribed by the Board's Executive Officer. For the first year this will consist of the following. In January 1988 all monitoring wells will be sampled and analyzed using EPA Method 8240 with an open scan. These results will be included in the first monthly report required by Provision 5. Subsequently, all monitoring wells will be monitored quarterly using either EPA Method 8240 or 8010 with the results submitted with the monthly report for that month. Groundwater level measurements will be taken monthly and reported in the monthly reports.
2. The dischargers shall comply with Prohibitions A.1., A.2., and A.3., and Specifications B.1. and B.2. above, in accordance with the following time schedule and tasks:

COMPLETION DATE/TASK:

- a. COMPLETION DATE: February 2, 1988

TASK: SUBMIT CHEMICAL USE HISTORY AND IDENTIFY PREVIOUS SITE USERS: Submit a technical report containing a summary of the types, quantities and methods of handling volatile organic chemicals (VOCs) at the site during Alza Corporation's occupancy. This shall include maps identifying where VOCs have been stored, handled, disposed, and released. The names and addresses of previous tenants and users of the site and dates and locations of occupancy will be provided to the extent possible.

- b. 1) COMPLETION DATE: February 2, 1988

TASK: GROUNDWATER POLLUTION CHARACTERIZATION: Submit a technical report acceptable to the Executive Officer containing a proposal to define the lateral and vertical extent of the groundwater pollution. The proposal shall consider the guidance contained in the Regional Board staff's letter to Stanford University dated January 5, 1988.

- 2) COMPLETION DATE: May 2, 1988

TASK: COMPLETION OF CHARACTERIZATION: Submit a technical report acceptable to the Executive Officer documenting completion of the necessary tasks identified in the technical report submitted for Task 2.b.1).

- c. 1) COMPLETION DATE: February 2, 1988

TASK: IDENTIFY SOURCES AND CHARACTERIZE SOIL POLLUTION: Submit a technical report acceptable to the Executive Officer containing a proposal to identify all pollution sources onsite and to define the horizontal and vertical extent of soil pollution onsite. The objective of the proposal is to assure that pollutants in the soil are defined well enough to evaluate the relative merits of using excavation, vacuum extraction, or some combination of these possible interim measures. Pollutants in the soil shall also be defined well enough to provide a baseline from which to evaluate the effectiveness of the interim measures after they are implemented.

- 2) COMPLETION DATE: May 2, 1988

TASK: COMPLETION OF IDENTIFICATION AND CHARACTERIZATION: Submit a technical report acceptable to the Executive Officer documenting completion of the necessary tasks identified in the technical report submitted for Task 2.c.1).

- d. 1) COMPLETION DATE: June 3, 1988

TASK: INTERIM REMEDIAL ACTIONS: Submit a technical report acceptable to the Executive Officer which contains an evaluation of interim remedial alternatives, a recommended plan for interim remediation, and an implementation time schedule. This report shall evaluate the removal and/or cleanup of polluted soils; evaluate alternative hydraulic control systems to contain and to initiate cleanup of polluted groundwater; and include a completed NPDES application to discharge to surface waters, if such discharge is an element of the plan.

- 2) COMPLETION DATE: December 2, 1988

TASK: COMPLETION OF INTERIM REMEDIAL ACTIONS: Submit a technical report acceptable to the Executive Officer documenting completion of construction and startup of the operation of the interim remedies identified in the technical report submitted for Task 2.d.1).

- e. COMPLETION DATE: January 8, 1990

TASK: EVALUATE INTERIM HYDRAULIC CONTAINMENT AND SOIL REMOVAL MEASURES: Submit a technical report acceptable to the Executive Officer which evaluates the effectiveness of the interim onsite hydraulic containment system. Such an evaluation shall include, but need not be limited to, an estimation of the flow capture zone of the extraction wells, establishment of the cones of depression by field measurements, and presentation of chemical monitoring data, if extraction wells are proposed. This report shall also

evaluate and document the removal and/or cleanup of polluted soils.

f. COMPLETION DATE: January 8, 1990

TASK: PROPOSED FINAL CLEANUP OBJECTIVES AND ACTIONS:
Submit a technical report acceptable to the Executive Officer containing the results of the remedial investigation; an evaluation of the installed interim remedial measures; a feasibility study evaluating alternative final remedial measures; the recommended measures necessary to achieve final cleanup objectives; and the tasks and time schedule necessary to implement the recommended final remedial measures.

3. The submittal of technical reports evaluating immediate, interim and final remedial measures will include a projection of the cost, effectiveness, benefits, and impact on public health, welfare, and environment of each alternative measure. The remedial investigation and feasibility study shall consider the guidance provided by Subpart F of the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR Part 300); Section 25356.1 (c) of the California Health and Safety Code; CERCLA guidance documents with reference to Remedial Investigation, Feasibility Studies, and Removal Actions; the State Water Resources Control Board's Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California"; and the Regional Board staff report "Information to be Included in Proposals and Resultant Sampling Reports for Groundwater and Associated Soil Investigations."
4. If the dischargers are delayed, interrupted or prevented from meeting one or more of the completion dates specified in this Order, the dischargers shall promptly notify the Executive Officer and the Board may consider revision to this Order.
5. Technical reports on compliance with the Prohibitions, Specifications, and Provisions of this Order shall be submitted monthly to the Board commencing on February 29, 1988 and covering the previous month. On a monthly basis thereafter, these reports shall consist of a letter report that, (1) summarizes work completed since submittal of the previous report, and work projected to be completed by the time of the next report, (2) identifies any obstacles which may threaten compliance with the schedule of this Order and what actions are being taken to overcome these obstacles, and (3) includes, in the event of non-compliance with Provision C.2. or any other Specification or Provision of this Order, written notification which clarifies the reasons for non-compliance and which proposes specific measures and a schedule to achieve compliance. This written notification shall identify work not completed that was projected for completion, and shall identify the impact of non-compliance on achieving compliance with the remaining requirements of this Order. On a quarterly basis, commencing with the March monthly report due April 30, 1988 the monthly reports shall include, but

need not be limited to, updated water table and piezometric surface maps for all affected water bearing zones, cross-sectional geological maps describing the hydrogeological setting of the site, and appropriately scaled and detailed base maps showing the location of all monitoring wells and extraction wells, and identifying adjacent facilities and structures.

6. The dischargers shall submit to the Board, according to the schedule, shown below technical reports acceptable to the Executive Officer containing Quality Assurance Project Plans, Site Safety Plans, and Site Sampling Plans. The Quality Assurance Project Plan's, Site Safety Plan's, and Site Sampling Plans' format and contents shall be consistent with CERCLA regulations and guidance documents.

<u>Technical Report</u>	<u>Date Due</u>
a. Quality Assurance Project Plan	May 2, 1988
b. Site Sampling Plan	*
c. Site Safety Plan	*

* Required for all technical reports containing proposals

7. All hydrogeological plans, specifications, reports, and documents shall be signed by or stamped with the seal of a registered geologist, engineering geologist or professional engineer.
8. All samples shall be analyzed by State certified laboratories or laboratories accepted by the Board using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control records for Board review.
9. The dischargers shall maintain in good working order, and operate, as efficiently as possible, any facility or control system installed to achieve compliance with the requirements of this Order.
10. Copies of all correspondence, reports, and documents pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order, shall be provided to the following agencies:
 - a. Santa Clara Valley Water District
 - b. Santa Clara County Health Department
 - c. City of Palo Alto
 - d. State Department of Health Services/TSCD

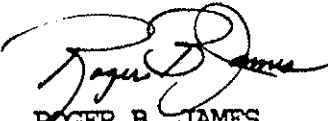
The Executive Officer may additionally require copies of correspondence, reports and documents pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order to be provided to the U.S. Environmental Protection Agency, Region IX, and to a local repository for public use.

11. The dischargers shall permit the Board or its authorized representative, in accordance with Section 13267(c) of the California Water Code:

- a. Entry upon premises in which any pollution sources exist, or may potentially exist, or in which any required records are kept, which are relevant to this Order.
 - b. Access to copy any records required to be kept under the terms and conditions of this Order.
 - c. Inspection of any monitoring equipment or methodology implemented in response to this Order.
 - d. Sampling of any groundwater or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the discharger.
12. The dischargers shall file a report on any changes in site occupancy and ownership associated with the facility described in this Order.
13. If any hazardous substance is discharged in or on any waters of the state, or discharged and deposited where it is, or probably will be discharged in or on any waters of the state, the discharger shall report such discharge to this Regional Board, at (415) 464-1255 on weekdays during office hours from 8 a.m. to 5 p.m., and to the Office of Emergency Services at (800) 852-7550 during non-business hours. A written report shall be filed with the Regional Board within five (5) working days and shall contain information relative to: the nature of waste or pollutant, quantity involved, duration of incident, cause of spill, Spill Prevention, Control, and Countermeasure Plan (SPCC) in effect, if any, estimated size of affected area, nature of effects, corrective measures that have been taken or planned, and a schedule of these activities, and persons/agencies notified.

Pursuant to California Water Code Sections 13304 and 13350, if the dischargers fail to comply with the provisions of this order, the Executive Officer may request the Attorney General to take appropriate enforcement action against the dischargers, including injunctive relief, or the Board may schedule a hearing to consider assessing civil monetary penalties and to consider requesting the Attorney General to take appropriate enforcement action against the dischargers, including injunctive and civil monetary remedies.

JANUARY 12, 1988
Dated


ROGER B. JAMES
Executive Officer